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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,175	04/27/2001	Warren M. Farnworth	MI22-1703	4157
21567	7590	04/10/2006	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			ROBERT, RUSSELL MARC	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 04/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

09/844,175

Applicant(s)

FARNWORTH ET AL.

Examiner

Russell M. Kobert

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-42, 54, 56-65, 67-70 and 75-91 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31, 33, 34, 37-42, 62, 67, 68, 75-79, 81, 82, 85-88, 90 and 91 is/are rejected.
- 7) ☒ Claim(s) 31-42, 54, 56-65, 67-70, 75, 76 and 79-91 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0106.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. Upon reconsideration of Applicant's arguments filed January 30, 2006 and prior arguments filed on August 12, 2002, the arguments presented therein are not persuasive. Blonder et al continues to read on at least claims 31, 33, 34, 37-42, 62, 67-68, 75-79, 81-82, 85-88 and 90-91. Applicants appear to be arguing the unconsidered specific reference teachings of Blonder in the remarks filed August 12, 2002, reciting permanent connections between a chip and a carrier that are contrary to Applicants' invention; specifically, Applicants' teaching that the invention allows for removable interconnects. Applicants' appear to be emphasizing that intended functional use makes the apparatus of Blonder different from that of Applicants' own invention. This argument fails to establish a physical and material difference between the claimed apparatus and the apparatus taught by Blonder.

The following is a recitation of MPEP 2111.04 that states that claim scope is not limited by claim language that does not limit a claim to a particular structure (note "structure"):

MPEP 2111.04 [R-3] "Adapted to," "Adapted for," "Wherein," and "Whereby" Clauses

Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. However, examples of claim language, although not exhaustive, that may raise a question as to the limiting effect of the language in a claim are:

- (A) "adapted to" or "adapted for" clauses;
- (B) "wherein" clauses; and
- (C) "whereby" clauses.

2. In order to emphasize claim language not considered furthering limiting the claimed invention, such limitations have been *italicized* in this Office Action.

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3. Claims 31-42, 54, 56-65, 67-70, 75-76 and 79-91 are objected to because of the following informalities:

Independent claims 31, 54, 79, 89, 90 and 91 make reference to "comprising semiconductor material." It is not clear what components are and do not comprise semiconductor material by the manner in which this is stated. For instance, is the engagement probe made of semiconductor material or is the engagement probe projecting from the apparatus substrate made of semiconductor material or is the apparatus substrate made of semiconductor material or is the apex in the form of a knife-edge line made of semiconductor material?

Claims 75-76 and 81-88 recite limitations not supported by the specification such as "the apex comprises a solid mass of material devoid of any void space," "the knife-edge line comprises a polyhedron," and "the knife-edge line comprises a triangular prism."

Appropriate correction is required.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 31, 33, 34, 37-42, 62, 67-68, 75-79, 81-82, 85-88 and 90-91 are rejected under 35 U.S.C. 102(b) as being anticipated by Blonder et al (4937653).

Blonder et al anticipates a removable electrical interconnect apparatus (Figures 5-7) *for removably engaging electrically conductive pads (24) on semiconductor substrates (101) having integrated circuitry fabricated therein*, the apparatus comprising:

a substrate (10); and

an engagement probe (surface of triangular shaped objects shown in Figures 6-7 from a side view) projecting from the substrate *to engage a single conductive pad (24) on a semiconductor substrate (101) having integrated circuitry (col 3, ln 59-60) formed in the semiconductor substrate*, the engagement probe having an outer surface comprising an apex in the form of a knife-edge line (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45) and comprising semiconductor material *and configured to removably penetrate a single conductive pad of the semiconductor substrate comprising integrated circuitry and to removably penetrate another single conductive pad of another semiconductor substrate also comprising integrated*; as recited in claim 31.

As to claim 33, Blonder et al further anticipates the knife-edge line projects from a penetration stop plane (approximate surface 13).

As to claim 34, Blonder et al further anticipates the knife-edge line projects from a penetration stop plane, the knife-edge line having a tip (uppermost portion between the V-shaped grooves) and having a base (portion between lowermost portions of V-shaped grooves) at the penetration stop plane *of about one-half the thickness of conductive pads which the apparatus is adapted to engage.*

As to claim 37, Blonder et al further anticipates outermost portions of the apex comprise a first electrically conductive material (gold-plated nickel; col 7, ln 64-66), *and wherein the conductive pads for which the apparatus is adapted to engage have outermost portions comprising a second electrically conductive material (gold pads); the first and second electrically conductive materials being different (col 5, ln 57-61 and col 7, ln 63 – col 8, ln 6).*

As to claim 38, Blonder et al further anticipates the engagement probe comprises material of a bulk semiconductor substrate (semiconductor wafers are made from bulk semiconductor substrates and Blonder et al refers to the silicon carrier 10 as a semiconductor wafer; see col 4, ln 29-45).

As to claim 39, Blonder et al further anticipates the knife-edge line includes an outer conductive layer (gold-plated nickel noted at col 7, ln 63 – col 8, ln 6)).

As to claim 40, Blonder et al further anticipates the outer surface (14) includes plural knife-edge lines (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-

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grooves by Blonder at column 4, lines 29-45) *configured to engage the single conductive pad.*

As to claim 41, Blonder et al further anticipates the engagement probe is formed from a semiconductor substrate (col 7, ln 49-59) and the outer surface (14) includes plural knife-edge lines (see Figure 5, center lines of nested L's, representing knife-edge lines, separating sides that slope downward to the bottom 45; col 5, ln 39-47) configured to engage the single conductive pad.

As to claim 42, Blonder et al further anticipates the engagement probe is formed from a semiconductor substrate (col 7, ln 49-59) and the outer surface (14) includes plural knife-edge lines (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45) *configured to engage the single conductive pad* and the knife-edge lines include outer conductive layers (col 7, ln 59-66).

As to claim 62, having the knife-edge line sized and positioned to extend elevationally above an uppermost surface of the apparatus substrate is within the operable scope of the apparatus disclosed by Blonder et al.

As to claim 67, having the apparatus substrate made of semiconductor material is anticipated by Blonder et al (wafer carrier 10 is made of semiconductor material; col 3, ln 59-61).

As to claim 68, the apparatus substrate comprises semiconductor material and the engagement probe comprises semiconductor material of the apparatus substrate is anticipated by Blonder et al (wafer carrier 10 is made of semiconductor material; col 3, ln 59-61 and Figure 7 shows engagement probes shown as triangular like forms)

As to claim 75, having the apex comprising a solid mass of material devoid of any void space is clearly shown in Figure 7.

As to claims 81 and 82, the apex in the form of a knife-edge line being either a polyhedron or a triangular prism is anticipated by Blonder et al (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures, which are variations of polyhedrons, that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45).

Blonder et al anticipates an electrical system comprising:

a first electrically conductive pad on a first semiconductor substrate comprising integrated circuit formed using the first semiconductor substrate;

a second electrically conductive pad on a second semiconductor substrate comprising integrated circuitry formed using the second semiconductor substrate; (note column 4 lines 20-28 that makes reference to typically more than two chips can be mounted on the carrier) and

a removable electrical interconnect apparatus (shown in Figure 7 below chip pad 24) *configured to removably engage the first and second electrically conductive pads*, the apparatus comprising:

an apparatus substrate (10); and

an engagement probe (surface of triangular shaped objects shown in Figures 6-7 from a side view) projecting from the apparatus substrate and comprising an apex in the form of a knife-edge line (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45) and wherein the apex comprises semiconductor material *configured to removably engage the first electrically conductive pad and to removably engage the second electrically conductive pad*; as recited in claim 77.

As to claim 78, Blonder et al anticipates the apex is *configured to penetrate the first and the second electrically conductive pads*.

As to claims 85, 86, 87 and 88, having the apex in the form of a knife-edge line being either a polyhedron or a triangular prism is anticipated by Blonder et al (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures,

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which are variations of polyhedrons, that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45).

Blonder et al anticipates an electrical system comprising:

a single conductive pad (24);

a removable engagement probe (shown in Figure 7 below chip pad 24) comprising an apex in the form of a knife-edge line (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45) and comprising semiconductor material and *sized and positioned to engage the single conductive pad*; and

wherein the knife-edge line projects from a penetration stop plane (approximate surface 13); as recited in claim 79.

Blonder et al anticipates a removable engagement probe having an outer surface comprising an apex in the form of a knife-edge line (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45) and comprising semiconductor material *and sized and positioned to penetrate a single conductive pad*;

wherein the knife-edge line projects from a penetration stop plane (approximate surface 13); and

wherein the knife-edge line has a tip (uppermost portion between the V-shaped grooves) and has a base (portion between lowermost portions of V-shaped grooves) at the penetration stop plane, *the tip being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage*; as recited in claim 90.

Blonder et al anticipates a removable engagement probe having an outer surface comprising an apex in the form of a knife-edge line (the triangular shaped portions of Figure 7 in view of Blonder's noted "V-grooves" produces a series of parallel etchings upon the surface of the semiconductor substrate 10 thereby producing a plurality of three dimensional shaped "triangular prism" like structures that are parallel to each other; note definition of V-grooves by Blonder at column 4, lines 29-45) and comprising semiconductor material *and sized and positioned to penetrate a single conductive pad*;

wherein the knife-edge line projects from a penetration stop plane (approximate surface 13); and

wherein outermost portions of the apex comprise a first electrically conductive material (Blonder et al discloses wiring 13 made of gold or gold-plated nickel; see reference to carrier pads at column 7, lines 59-66), *and wherein the conductive pad for which the probe is adapted to engage has outermost portions comprising a second electrically conductive material, the first and second electrically conductive materials being different*; as recited in claim 91.

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6. A shortened statutory period for response to this action is set to expire three month(s) from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (571) 272-1963. For an automated menu of Tech Center 2800 phone numbers call (571) 272-2800.



Russell M. Kobert
Patent Examiner
Group Art Unit 2829
March 30, 2006



VINH NGUYEN
PRIMARY EXAMINER

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